

Energy and water balance controls over interannual phenology and carbon flux variations

Randy Koster[†]; Greg Walker

[†] Global Modeling and Assimilation Office, NASA/GSFC, USA

Leading author: randal.d.koster@nasa.gov

The dynamic vegetation and carbon storage components of the NCAR Community Land Model have been combined with the water and energy balance framework of the Catchment Land Surface Model of the NASA Global Modeling and Assimilation Office. We run the resulting combined system offline across the continental United States to generate long time series (several decades) of phenological variations and carbon fluxes. Subsequent sensitivity analyses are then used to address how reductions in the interannual variability of meteorological forcing (precipitation, radiation, etc.) are manifested in the phenology and carbon fluxes. The results provide, among other things, a picture of how the hydrological, energy, and carbon cycles are intrinsically entwined.